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Atomic Weapons Program, Soviet

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The Soviet atomic weapons program began during World War II through domestic scientific research and development efforts lead by nuclear physicists Igor Kurchatov (1903-1960) and Andrei Sakharov (1921-1989) and assisted by captured German scientists. These programs also involved foreign espionage by individuals such as Klaus Fuchs (1911-1988) and Ethel (1915-1953)and Julius Rosenburg (1918-1953) targeting the United Kingdom and United States. Enhancing their nuclear arsenal through espionage against the U.S. and NATO was an ongoing Soviet goal during the Cold War era.

These efforts succeeded in producing the first Soviet atomic bomb exploded on August 29, 1949 at Semipalatinsk in Kazakhstan. The first Soviet hydrogen bomb exploded on August 12, 1953, also at Semipalatinsk. Subsequent decades saw the Soviets develop an extensive nuclear weapons research and testing program and various locales including Krasnoyarsk, Sverdlovsk, and Tomsk.

This program featured a nuclear weapons triad covering air-, land-, and sea-based legs whose sized continually increased and eventually surpassed the U.S. nuclear deterrent. This arsenal consisted of intermediate range nuclear missiles such as the SS-20 which threatened Western Europe; the SS-18 ICBM. whose 11,000 kilometer range made it capable of reaching the United States;, the

Typhoon class SLBM SS-N-5 missile with a 1,650 kilometer range; and the Backfire and Blackjack nuclear bombers. Moscow's arsenal eventually reached a size of 8,043 warheads in 1981, with some of these being capable of delivering multiple strikes to divergent targets from a single missile.

For several decades the Soviet nuclear weapons program was a major factor in international politics and security. Its potential use in the 1962 Cuban Missile Crisis and the specter of its use in other Cold War confrontations limited the flexibility of the United States and allied countries to militarily pressure the Soviets for fear of Moscow's military retaliation.

The Soviet nuclear weapons buildup continued despite rhetoric from Soviet leaders about the dangers of a nuclear arms race; their advocacy of arms control agreements with the United States such as Strategic Arms Limitation Treaty I (1972) and ABM Treaty (1972), which they never intended to keep, and repeatedly broke; and active and unsuccessful propaganda and intelligence efforts to keep the United States and its NATO allies from deploying Pershing II intermediate range nuclear missiles in Western Europe in 1983.

An extensive nuclear doctrine was also developed by the Soviet military governing the use of these weapons. Characteristics of this doctrine included preemption or first strike capability, quantitative superiority since a nuclear war

could be of extended duration, counterforce targeting, combined arms operations supplementing nuclear strikes, and defense against nuclear weapons attacks.

During the 1980s under Mikhail Gorbachev the Soviets expressed increasing concern against U.S. efforts to develop ballistic missile defenses through the Reagan Administration's Strategic Defense Initiative ("Star Wars"). Both sides held off on deploying ballistic missile defenses, but research into these systems continued and the U.S. would eventually withdraw from the ABM Treaty in 2001.

The Soviet Union's collapse in 1991 resulted in the dispersal of its nuclear arsenal to successor states such as the Russian Federation, Kazakhstan, and Ukraine-- although these weapons would eventually be consolidated into the Russian Federation. The early years of the Russian Federation saw hard economic times which negatively impacted the Soviet nuclear weapons workforce. Many scientists lost their jobs due to government spending reductions and moved to the licit and illicit international nuclear markets to offer their expertise to prospective employers. There was also international concern over securing the Soviet nuclear weapons arsenal which the U.S. addressed by establishing the Nunn-Lugar program in November 1991 providing funding and technical expertise to safeguard and dismantle Russia's large stockpiles of weapons of mass destruction and delivery systems.

The Soviet atomic weapons program left a legacy of environmental damage in many areas of the former Soviet Union. The Russian Federation retains significant stockpiles of nuclear weapons and using nuclear weapons remains a significant part of Russian military doctrine two decades after the Soviet Union's collapse. Russia's withdrawal from Nunn-Lugar in October 2012 raises additional questions about Russia's commitment to nuclear nonproliferation.

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See also: ABM (Anti-Ballistic Missile) Treaty; Cuban Missile Crisis (October 1962); Fuchs, Klaus Emil Julius (December 29, 1911-January 28, 1988); Kurchatov, Igor (1903-1960); Sakharov, Andrei Dmitrievich (1921-1989); SALT I (November 1969-May 1972)

Further Reading

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